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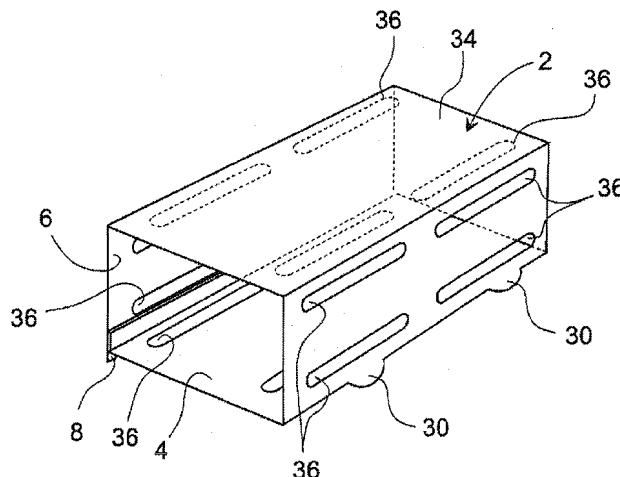
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(54) Title: PACKING FOR USE WHEN COOKING DOUGH AND FOOD ITEMS IN A MICROWAVE OVEN



(57) Abstract: There is described packing (2) of cardboard and shaped as a tube, preferably horizontal, or a box for use in cooking dough products (38) and other fast-food products, e.g. pizza, pita bread, French loaves, hamburgers, calzones, spring rolls, or breaded products, e.g. breaded chicken or fish pieces, in a microwave oven, the packing having a susceptor coating (4) on parts of internal areas, where a lower part of the packing has such a shape or is formed with such shaped spacing means, e.g. legs (8, 30), that access for ventilation for a part of the underside of the packing is ensured, and where the packing (2) at the said underside part (16) and preferably in one or more side walls (6, 24) have ventilation openings (36), the mutual position and shape of which are adapted to the shape of the packing, of the dough item and/or of the product. By means of simple measures is hereby achieved an optimal packing which is suited as an internal sales packing as well as for use in cooking the dough product or the product in a microwave oven. The packing according to the invention may e.g. be placed in an outer packing that e.g. consists of a plastic bag.



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Packing for use when cooking dough and food items in a microwave oven.

Background of the invention

5 The present invention concerns a packing for use in cooking dough and food products in a microwave oven and of the kind indicated in the preamble of claim 1.

Cooking of dough products, e.g. French loaves, or fast-food products comprising some kind of dough wrapping, e.g. spring rolls, have hitherto not been possible to postbake in microwave oven with satisfactory result. Most often, it happens that the dough en-
10 veloping is not properly baked, i.e. it lacks crispness, because the surface still contains too much moisture, or overbaking with resulting scorching of the product occurs.

It is the purpose of the invention to indicate a packing of the kind mentioned in the introduction, the packing making it possible to cook dough products and other fast-
15 food products by means of simple measures in a microwave oven in such a way that the packing ensures optimal baking conditions for dough products and other fast-food products, so that a crisp surface is achieved without overbaking or moisture accumulation in the surface of the food product.

20 The packing according to the invention is characterised in that a lower part of the packing has such a shape or is formed with such shaped spacing means, e.g. legs, that access for ventilation to a part of the underside of the packing is ensured, and that the packing at the said underside part and preferably in one or more side walls have venti-
25 lation openings, the mutual position and shape of which are adapted to the shape of the packing, of the dough item and/or of the product. By means of simple measures is hereby achieved an optimal packing which is suited as an internal sales packing as well as for use in cooking the dough item or the product in a microwave oven. The packing according to the invention may e.g. be placed in an outer packing that e.g. consists of a plastic bag. Possibly a bag of pre-baked French loaves, as freeze goods,
30 may contain a number of tube packings according to the invention for successive use in postbaking of one or more French loaves at a time in a microwave oven.

Suitably, the packing according to the invention may be designed as a horizontal tube with four-edged, preferably rectangular, cross-section, which furthermore may be designed so that the spacing means at one side of the packing are constituted by a lower, projecting edge of the packing material and by feet punched along a bending line at the opposite side of the packing.

A particularly simple and advantageous embodiment of the invention may furthermore be achieved in that the ventilation openings are constituted by narrow, elongate openings which are formed in a bottom part of the packing along opposite sides of the bottom part and along a lower part and preferably also along an upper part of opposite side walls of the packing.

As application for several pieces of dough or food products, the packing according to the invention may furthermore be designed so that it has two tubular compartments and is formed with narrow elongate ventilation openings at each their side of a central partitioning wall in a bottom part as well as in an upper wall.

Alternatively, the packing according to the invention may be formed as a horizontal tube with circular cross-section and preferably open ends, the packing being peculiar in that the packing at each their side of a lower central generatrix is formed with a number of e.g. semi-circular cut-outs forming lugs of material which are designed to be bent out and constitute support legs for the packing.

As a further alternative, the packing according to the invention may be shaped as a horizontal tube with triangular cross-section and with preferably open ends, the packing being peculiar in that the said spacing means are constituted by semi-circular cut-outs formed along bending lines at opposite, acutely angled outer edges of the packing, the cut-outs forming material lugs arranged for being bent out and constituting feet for the packing, and that the ventilation openings are constituted by narrow, elongate apertures formed in the side walls of the packing, preferably at both sides of the acutely angled edges of the packing.

As a still further alternative, the packing according to the invention may be shaped as a horizontal tube with oval cross-section and preferably open ends, the packing being peculiar in that it at each their side of a lower central generatrix is formed with a number of e.g. semi-circular cut-outs forming lugs of material which are designed to be bent out and constitute support legs for the packing.

According to a further alternative, the packing according to the invention may be shaped as a horizontal tube with hexagonal cross-section and preferably open ends, the packing being peculiar in that it, at each their side of a plane bottom part, is formed with a number of e.g. semi-circular cut-outs forming lugs of material which are designed to be bent out and constitute support legs for the packing.

With the purpose of adapting the packing according to the invention to any desired product and to any desired decoration, it may be advantageous that the ventilation openings may be any desired mutual position and shape, such as oval, round, four-edged, rectangular, elongate with semi-circular ends, etc.

With the purpose of ensuring crispness of the surface of dough and food products it may be particularly advantageous that the susceptor coating on an inner side of the bottom part is formed with apertures, e.g. perforations allowing the packing material to absorb fat and moisture.

Description of the drawing

The invention is explained in more detail in the following with reference to the drawing on which:

- Fig. 1 shows a perspective view of an embodiment of a tubular packing according to the invention,
- Fig. 2 shows a simplified, perspective view of the packing according to the invention of Fig. 1, particularly for illustrating the special feet on the packing,
- Fig. 3 shows a schematic end view of the packing shown in Figs. 1 and 2, shown with dough products with oval cross-section, for illustrating the surrounding ventilation through respective ventilation openings of the packing,

- Fig. 4 shows a perspective view of a further embodiment of a tubular packing according to the invention with triangular cross-section,
- Fig. 5 shows a perspective view of a further embodiment of a tubular packing according to the invention with oval cross-section,
- 5 Fig. 6 shows a schematic end view of the packing shown in Fig. 5, placed on a plane support surface,
- Fig. 7 shows a perspective view of a still further embodiment of a tubular packing according to the invention with hexagonal cross-section,
- Fig. 8 shows a perspective view of a still further embodiment of a tubular packing according to the invention with square cross-section,
- 10 Fig. 9 shows perspective view of a still further embodiment of a tubular packing according to the invention with circular cross-section,
- Fig. 10 shows a perspective view of a still further embodiment of a tubular packing according to the invention with two rectangular chambers,
- 15 Fig. 11 shows a simplified perspective view of a still further embodiment of a packing according to the invention with the shape of a flat box with open ends,
- Fig. 12 shows a schematic end view of a still further embodiment of a packing according to the invention with bottom and top parts hinged together for forming a flat box with open ends,
- 20 Fig. 13 shows a schematic end view of a still further embodiment of a packing according to the invention, consisting of two separate, uniform tray and lid parts with open ends, and
- Fig. 14 shows a schematic end view of a still further embodiment of a packing according to the invention, consisting of a tray with open end and a plane lid.

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The packing 2 shown in Figs. 1 - 3 consists of cardboard provided internally with a susceptor coating 4, and which has a tubular rectangular cross-section, as the tube packing 2, in order to take up the least possible space, is intended for folding into a double walled, plane item which is raised to the tube shape only in the situation of use.

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The tube packing 2, which is e.g. intended for use in the final cooking of pre-baked dough items, e.g. French loaves, in a microwave oven, are folded and glued together in such a way that a side wall 6 has a lower, projecting edge part 8 which, as most clearly

shown in Fig. 2, has saw-tooth shape, so that a large number of feet 10 with V-shaped interspaces 14 are formed, i.e. so that a bottom surface 16 of the tube packing 2 may be lifted free from a plane support surface (Fig. 3).

5 At the opposite side, the tube packing 2 is provided with semi-circular cut-outs 26 in connection with a bending edge 20 between the bottom surface 16 and a side wall 24, the cut-outs forming material lugs 28 arranged to be bent out and constitute support legs 30 for the packing 2 so that this may be lifted off the support surface 18 at opposite sides of the bottom surface 16. Instead of the projecting edge at one side of the
10 tube packing 2, this may be formed with punchings at both side, preferably in connection with a line of bending, the punchings enabling the forming of feet when turning down material lugs which, apart from that, may have any suitable shape.

In the side walls 6 and 24, the bottom surface 16 and preferably also in a top side 34,
15 the tube packing 2 is formed with narrow, elongate ventilation apertures 36 which, as shown in Fig. 3, ensure good ventilation to a dough item 38 during final baking in a microwave oven. Note that the dough item, e.g. a French loaf, at all sides is in contact with the internal susceptor coating 4 of the packing 2, whereas the free corner areas between the dough item 38 and the packing 2, as shown with arrows 40, is efficiently
20 ventilated.

It is to be pointed out that the said ventilation openings may have any shape and placing, as it is in view, of course, that placing and shape of the ventilation openings are optimised according to the actual application of the packing.

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The tube packing 12 shown in Fig. 4 has triangular cross-section and may e.g. be intended for a spring roll. The packing 12 is provided with a projecting side edge 44 and with feet 46 at the opposite side of a bottom surface 48. A suitable number of ventilation openings 50 are disposed close to the angle points of the packing, right on the
30 spot where a possible dough item is normally not in contact with the inner side of the packing, i.e. where optimal ventilation is ensured.

The tube packing 22 shown in Figs. 5 and 6 has an oval cross-section and may e.g. be intended for a spring roll or a corresponding fast-food product. At each their side of a lower central generatrix , the packing 22 is provided with a number of semi-circular cut-outs 54 forming lugs of material that may be bent out and constitute support feet 56 for the packing which is thus held elevated above a support surface 58 (Fig. 6).

The tube packing 32 shown in Fig. 7 has hexagonal cross-section, may e.g. be intended for a French loaf or a corresponding pre-baked dough item. The tube packing 32 is delivered in flat pressed condition and is only raised in connection with insertion of the dough item/French loaf, i.e. so that the dough item is squeezed between the bottom and top side of the packing 32, as outlined with arrows 60, i.e. it is attempted that the bottom and top sides of the packing are continuously in contact with the dough item, even if this may attain lesser height during final baking in a microwave oven.

Fig. 8 shows a tubular packing 42 having square cross-section, and which e.g. may be intended for a French loaf, a spring roll, or a corresponding fast-food product which advantageously may be postbaked in a microwave oven. The packing 42 has, as previously described, a projecting side edge at one side, and a number of feet in the shape of bent out material lugs at the opposite side.

Fig. 9 shows a packing 52 having circular cross-section and which may be intended for a round dough item, e.g. a so-called French hot-dog. The packing 52 may also, in a way not shown, be provided with feet of the same type as those in the packing 22 (Fig. 5).

Fig. 10 shows a packing 62 having two rectangular chambers 64, each intended for a French loaf or a corresponding dough item. Note that the packing 62 consists of one continuous cardboard item which is bent in such a way that the cardboard is lying double by the two walls 66 and 68. Otherwise, the packing 62 has the same features as the previously described packings. The packing 62 may be folded to a flat item so as to take up as little space as possible before use.

Fig. 11 shows a flat, tubular packing 72 intended for a pizza or a corresponding fast-food product which also has a lower, projecting edge at one side and a number of feet at the opposite side and a suitable number of ventilation openings. In this case, speaking of a relatively wide packing, it may be necessary to punch a number of additional feet in under the bottom surface of the packing in order to be completely sure that the bottom surface is held free of the support surface.

Fig. 12 shows a packing 82 consisting of a flat box part 84 with a lid part 86 hinged together with it. In principle, this packing 82 also comprises the previously mentioned features, projecting edge and feet and ventilation openings.

The packing 92, cf. Fig. 13, consists of two identical parts which, according to wish, may be used as tray or lid part, whereas the packing 102 shown in Fig. 14 consists of a tray shaped lower part 104 and a plane lid 106.

CLAIMS

1. A packing (2,12,22,32,43,52,62,72,82,92,102) of cardboard and shaped as a tube, preferably horizontal, or a box for use in cooking dough products (38) and other fast-food products, e.g. pizza, pita bread, French loaves, hamburgers, calzones, spring rolls, or breaded products, e.g. breaded chicken or fish pieces, in a microwave oven, the packing having a susceptor coating (4) on parts of internal areas, characterised in that a lower part of the packing has such a shape or is formed with such shaped spacing means (8,30), e.g. legs, that access for ventilation for a part of the underside of the packing is ensured, and that the packing at the said underside part and preferably in one or more side walls have ventilation openings (36), the mutual position and shape of which are adapted to the shape of the packing, of the dough product and/or of the product.
2. A packing according to claim 1 and formed as a horizontal tube with four-edged, preferably rectangular, cross-section, characterised in that the spacing means at one side of the packing are constituted by a lower, projecting edge (8) of the packing material and by feet (30) punched along a bending line at the opposite side of the packing.
3. A packing according to claim 1 and 2, characterised in that the ventilation openings are constituted by narrow, elongate openings which are formed in a bottom part of the packing along opposite sides of the bottom part and along a lower part and preferably also along an upper part of opposite side walls of the packing.
4. A packing (62) according to claim 2 and 3, characterised in having two tubular compartments and being formed with narrow elongate ventilation openings at each their side of a central partitioning wall in a bottom part as well as in an upper wall.
5. A packing (52) according to claim 1 and formed as a horizontal tube with circular cross-section and preferably open ends, characterised in that the packing at

each their side of a lower central generatrix is formed with a number of e.g. semi-circular cut-outs forming lugs of material which are designed to be bent out and constitute support legs for the packing.

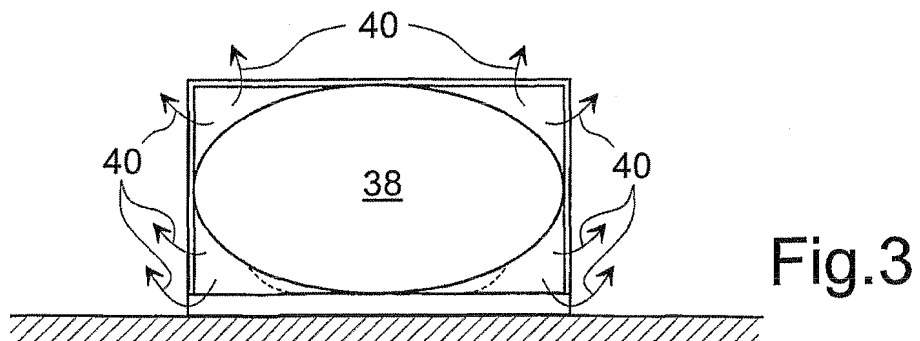
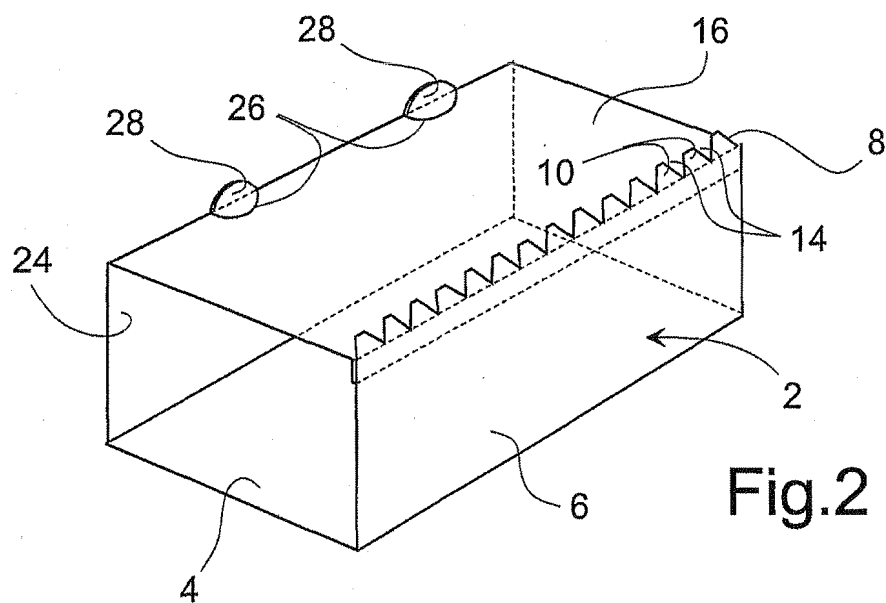
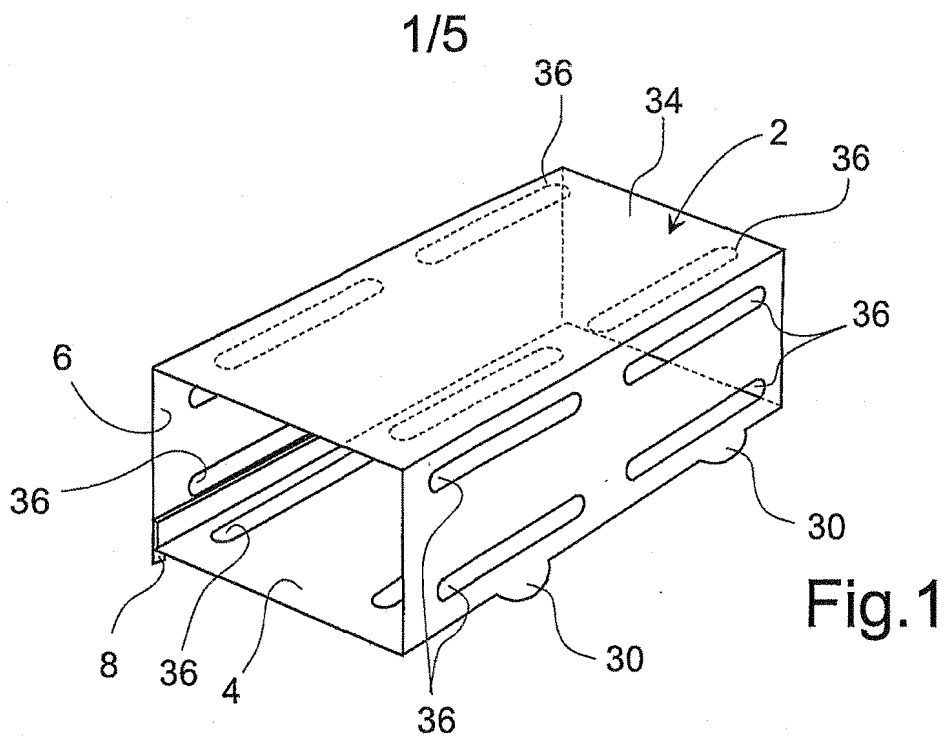
5 6. A packing (12) according to claim 1 and shaped as a horizontal tube with triangular cross-section and with preferably open ends, characterised in that the said spacing means are constituted by semi-circular cut-outs formed along bending lines at opposite, acutely angled outer edges of the packing, the cut-outs forming material lugs arranged for being bent out and constituting feet (46) for the packing, and that the
10 ventilation openings (50) are constituted by narrow, elongate apertures formed in the side walls of the packing, preferably at both sides of the acutely angled edges of the packing.

15 7. A packing (22) according to claim 1 and shaped as a horizontal tube with oval cross-section and preferably open ends, characterised in that the packing at each their side of a lower central generatrix is formed with a number of e.g. semi-circular cut-outs (54) forming lugs of material which are designed to be bent out and constitute support legs for the packing.

20 8. A packing (32) according to claim 1 and shaped as a horizontal tube with hexagonal cross-section and preferably open ends, characterised in that the packing at each their side of a plane bottom part is formed with a number of e.g. semi-circular cut-outs forming lugs of material which are designed to be bent out and constitute support legs for the packing.

25 9. A packing according to claim 1, characterised in that the ventilation openings may be any desired mutual position and shape, such as oval, round, four-edged, rectangular, elongate with semi-circular ends, etc.

30 10. A packing according to claim 1, characterised in that the susceptor coating on an inner side of the bottom part is formed with apertures, e.g. perforations allowing the packing material to absorb fat and moisture.



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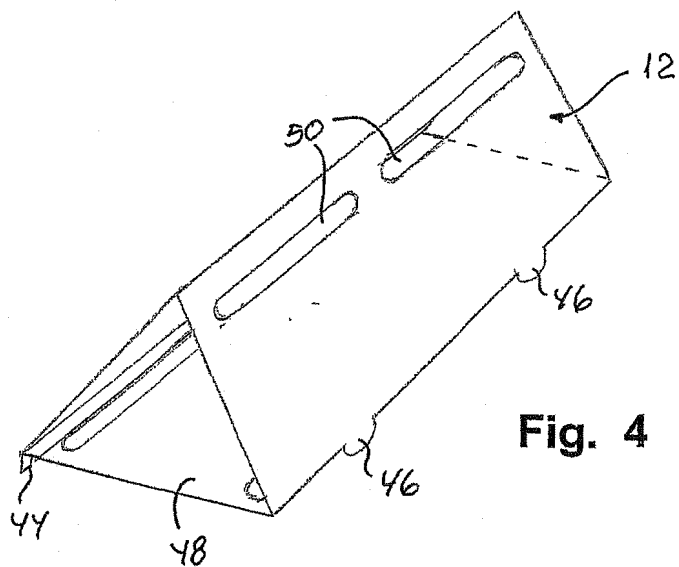


Fig. 4

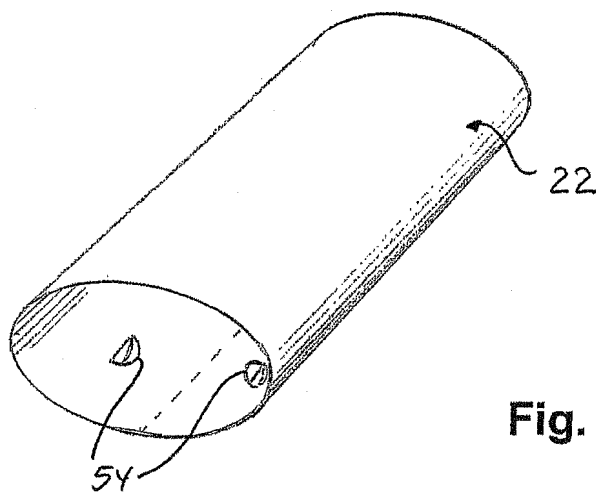


Fig. 5

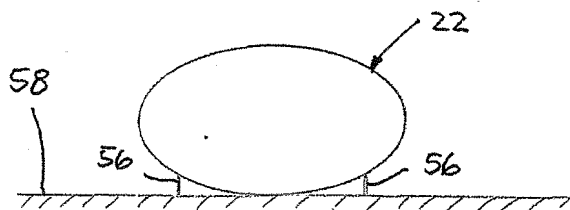


Fig. 6

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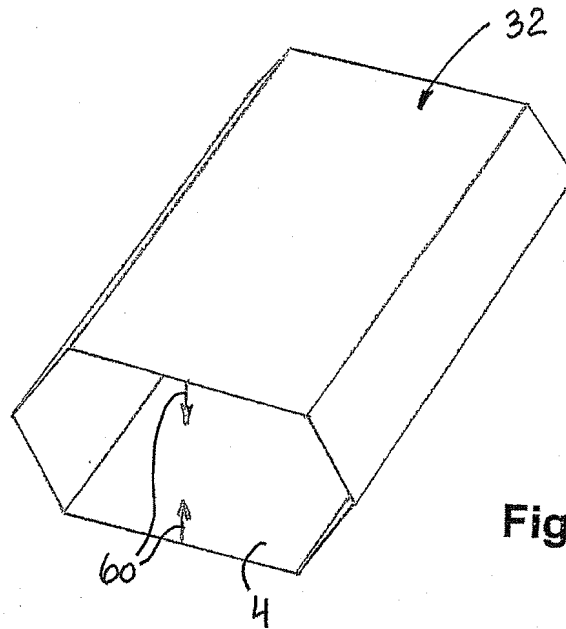


Fig. 7

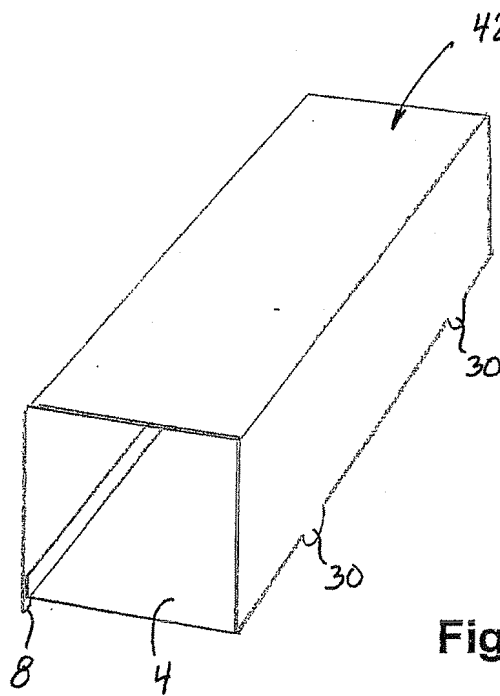


Fig. 8

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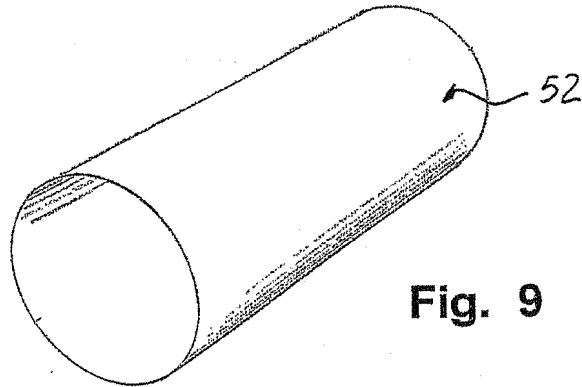


Fig. 9

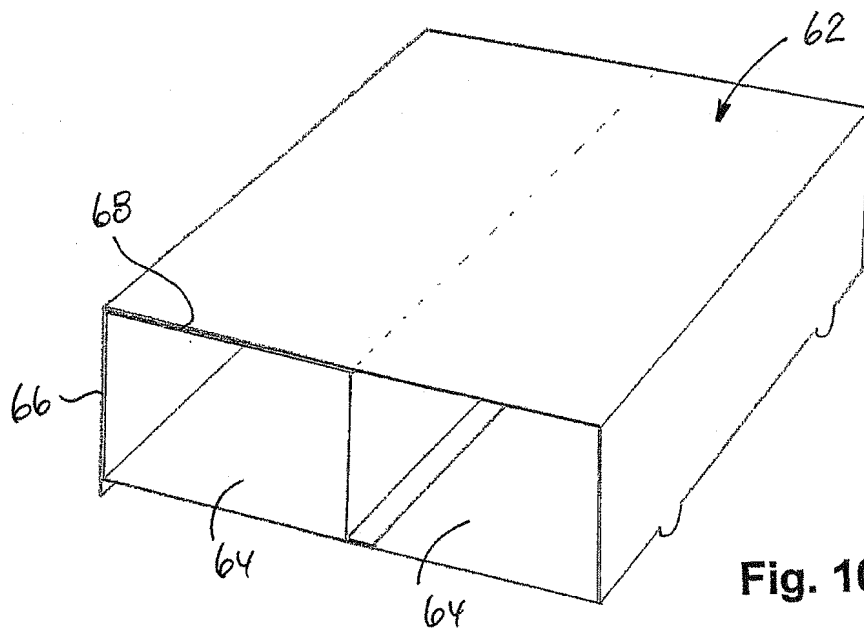


Fig. 10

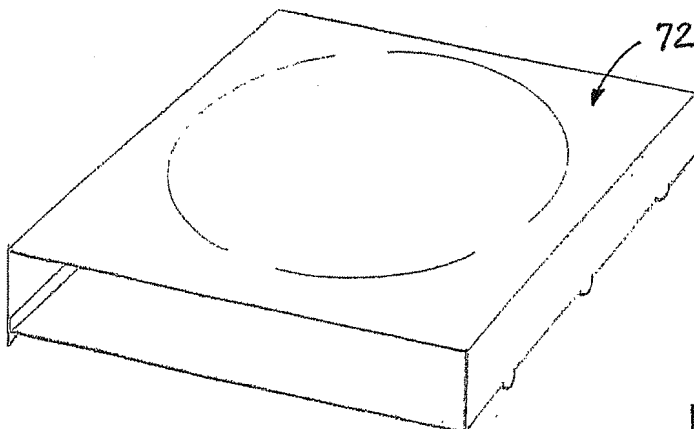
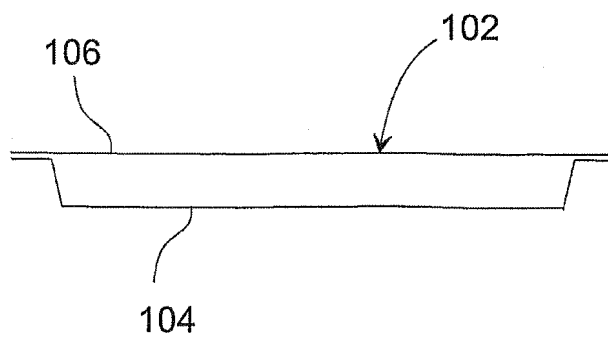
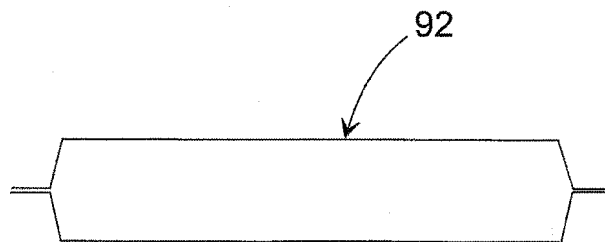
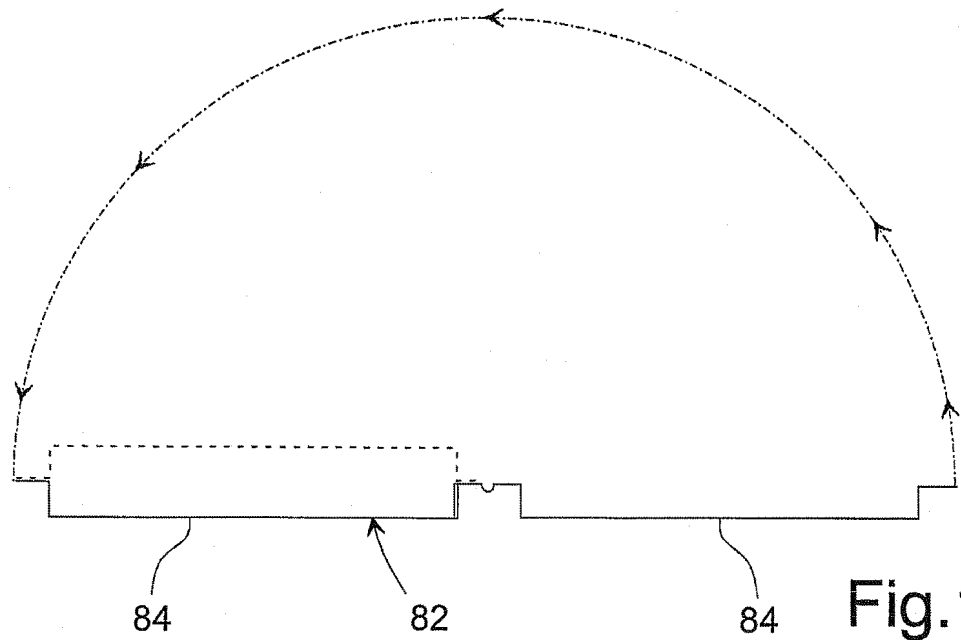


Fig. 11

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/DK 01/00751

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: B65D 81/34

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4260060 A (RUDOLPH A. FALLER), 7 April 1981 (07.04.81), figure 4, abstract --	1-10
X	US 4826072 A (JOSEPH J. HART), 2 May 1989 (02.05.89), claim 1 --	1-10
A	US 5986248 A (ICHIRO MATSUNO ET AL), 16 November 1999 (16.11.99), figure 3 --	1-10
A	EP 0451530 A2 (SOCIETE DES PRODUITS NESTLE S.A.), 16 October 1991 (16.10.91), figure 1 --	1-10

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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1 February 2002	2.0 -02- 2002
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/DK 01/00751

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4592914 A (MORRIS W. KUCHENBECKER), 3 June 1986 (03.06.86), abstract -----	1-10

INTERNATIONAL SEARCH REPORT

Information on patent family members

27/12/02

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